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Evaluating the Variation on Public Health's Perceived Field Need of Communicable Disease Reports

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Objective

To assess communicable disease report fields required by public health practitioners and evaluate the variation in the perceived utility of these fields.

Introduction

Communicable disease surveillance is a core Public Health function. Many diseases must be reported to state and federal agencies (1). To manage and adjudicate such cases, public health stakeholders gather various data elements. Since cases are identified in various healthcare settings, not all information sought by public health is available (2) resulting in varied field completeness, which affects the measured and perceived data quality. To better understand this variation, we evaluated public health practitioners' perceived value of these fields to initiate or complete communicable disease reports.

Methods

We chose four diseases: Histoplasmosis, acute hepatitis B, hepatitis C and salmonella. We asked public health practitioners from Marion County Health Department (MCHD) of Indianapolis to list the fields they felt were necessary when submitting a communicable disease report. We then asked them to evaluate those fields using the following criteria:

Required – A critical case attribute, when missing or unknown, would make the task of initiating and/or closing a case impossible or exceedingly difficult.

Desired – A case attribute allowing more complete epidemiologic profiles to be developed but, if missing, would not prohibit initiating and/or closing a case.

Not applicable – A case attribute that is not usually collected to initiate and/or close a case for the particular condition.

To quantify the need for the fields, we assigned a number to each response as follows:

0 - Not applicable 1 - Desired 2- Required

We summed the numbers for each field for each disease and created a table for the perceived need of that field (table 1).

Results

The perceived needs table showed a difference between the fields needed to initiate or close a case. Moreover the perceived need for fields varied by disease as well. To assess the difference in perceived needs, we calculated the standard deviation of the fields (table 2).

Conclusions

Data quality is essential, not only for research but to support routine public health practice as well. Many factors affect data quality; one of them is perceived need of the information by Public Health Practitioners. Despite working with public health stakeholders from the same organization we observed variation in their perceived needs for these fields to initiate or close a communicable case. These results highlight another source of the problem regarding health information quality and its goodness of fit issues.

The perceived need for the field	FUNGAL		HEPATITIS				ENTERIC		
	Histoplasmosis		Hepatitis B-acute		Hepatitis C		Salmonella		
Field Name	Initiate	Close	Initiate	Close	Initiate	Close	Initiate	Close	Sum
Disease	8	8	8	8	8	8	8	8	64
First Name	8	8	8	8	8	8	8	8	64
Middle Initial	4	5	4	5	4	5	4	5	36
Last Name	8	8	8	8	8	8	8	8	64
Parent - First Name	3	4	3	4	3	4	3	4	28
Parent - Middle Initial	1	1	1	1	1	1	1	1	8
Parent - Last Name	3	4	3	4	3	4	3	4	28
Phone Number	7	7	7	8	7	8	7	8	59
Street Number	7	8	7	8	7	8	7	8	60
Street Name	7	8	7	8	7	8	7	8	60
City	7	8	7	8	7	8	7	8	60
Zip Code	5	7	5	7	5	7	5	7	48
County	7	8	7	8	7	8	7	8	60
Date of Birth	8	8	8	8	8	8	8	8	64
Age	3	4	3	4	3	4	3	4	28
Sex	6	8	6	8	6	8	6	8	56
Pregnant	3	4	7	8	4	5	3	4	38
Race	4	8	4	8	4	8	4	8	48
Ethnicity	4	7	4	7	4	7	4	7	44
Health Care Worker									
Food Service Worker									
School (student/staff)	4	5	3	3	3	3	5	7	
Day Care (attendee/staff)									33
Name of School/Day Care	4	5	1	1	1	1	4	7	24
Part of an Outbreak	4	5	4	4	3	4	4	6	34
Etiologic Agent	7	8	7	8	7	8	7	8	60
Site of Infection	6	8	0	0	0	0	6	8	28
Date of Diagnosis (m, d, y)	5	7	6	7	6	7	6	7	51
Symptoms associated with infection	5	8	6	8	5	7	5	8	52
If yes to Symptoms: Onset Date (m, d, y)	5	7	6	8	5	7	5	7	50
If yes to Symptoms: Pertinent Symp/Signs	5	8	5	8	5	7	5	7	50
If yes to Symptoms: Died? (y/n)	6	8	6	8	6	7	7	8	56
Lab test(s) and result(s)	8	8	8	8	8	8	8	8	64
Lab test(s)/result(s) Date	7	8	7	8	7	8	7	8	60
Treatment (name of antibiotic)	4	8	1	1	1	1	5	7	28
Dosage	4	5	1	1	1	1	4	4	21
Date initiated	4	5	1	1	1	1	4	6	23
Antibiotic Resistance (y, n, nd)	1	1	0	0	0	0	4	4	11
If yes, what antibiotic?	0	0	0	0	0	0	3	4	7
Reporting Facility Code	2	3	2	3	2	3	2	3	20
If Hospital, Name Hospital	7	8	7	8	7	8	7	8	60
Name of Physician and Address	7	8	7	8	7	8	7	8	60
Record Number	5	6	5	6	5	6	5	6	44
Person Reporting (other than physician)	5	6	5	6	5	6	5	6	44
Telephone Number	7	7	7	7	7	7	7	7	56
Telephone Number (2)	2	2	2	2	2	2	2	2	16
Date of Report	6	6	6	6	6	6	6	6	48
TOTAL (max possible 360)	*223*	*273*	*210*	*248*	*204*	*241*	*233*	*285*	

Table 1. Perceived need for the selected communicable disease reports fields. Higher numbers (darker color) reflect greater perceived need.

The Disagreement for the field	FUNGAL		HEPATITIS				ENTERIC		
	Histoplasmosis		Hepatitis B-acute		Hepatitis C		Salmonella		
Field Name	Initiate	Close	Initiate	Close	Initiate	Close	Initiate	Close	Sum
Disease	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
First Name	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Middle Initial	0.00	0.43	0.00	0.43	0.00	0.43	0.00	0.43	1.73
Last Name	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parent - First Name	0.50	0.00	0.50	0.00	0.50	0.00	0.50	0.00	2.00
Parent - Middle Initial	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	4.00
Parent - Last Name	0.50	0.00	0.50	0.00	0.50	0.00	0.50	0.00	2.00
Phone Number	0.43	0.43	0.43	0.00	0.43	0.00	0.43	0.00	2.17
Street Number	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Street Name	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
City	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Zip Code	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	3.46
County	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Date of Birth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Age	0.43	0.71	0.43	0.71	0.43	0.71	0.43	0.71	4.56
Sex	0.50	0.00	0.50	0.00	0.50	0.00	0.50	0.00	2.00
Pregnant	0.43	0.71	0.43	0.00	0.00	0.43	0.43	0.71	3.15
Race	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethnicity	0.00	0.43	0.00	0.43	0.00	0.43	0.00	0.43	1.73
Health Care Worker									
Food Service Worker									
School (student/staff)	0.00	0.43	0.43	0.43	0.43	0.43	0.43	0.43	3.03
Day Care (attendee/staff)									
Name of School/Day Care	0.00	0.43	0.43	0.43	0.43	0.43	0.00	0.43	2.60
Part of an Outbreak	0.00	0.43	0.00	0.00	0.43	0.71	0.00	0.50	2.07
Etiologic Agent	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Site of Infection	0.50	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.00
Date of Diagnosis (m, d, y)	0.43	0.43	0.50	0.43	0.50	0.43	0.50	0.43	3.67
Symptoms associated with infection	0.43	0.00	0.50	0.00	0.43	0.43	0.43	0.00	2.23
If yes to Symptoms: Onset Date (m, d, y)	0.43	0.43	0.50	0.00	0.43	0.43	0.43	0.43	3.10
If yes to Symptoms: Pertinent Symp/Signs	0.43	0.00	0.43	0.00	0.43	0.43	0.43	0.43	2.60
If yes to Symptoms: Died? (y/n)	0.50	0.00	0.50	0.00	0.50	0.43	0.43	0.00	2.37
Lab test(s) and result(s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lab test(s)/result(s) Date	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Treatment (name of antibiotic)	0.00	0.00	0.43	0.43	0.43	0.43	0.43	0.43	2.60
Dosage	0.00	0.43	0.43	0.43	0.43	0.43	0.00	0.00	2.17
Date initiated	0.00	0.43	0.43	0.43	0.43	0.43	0.00	0.50	2.67
Antibiotic Resistance (y, n, nd)	0.43	0.43	0.00	0.00	0.00	0.00	0.00	0.43	1.30
If yes, what antibiotic?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.47
Reporting Facility Code	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	5.15
If Hospital, Name Hospital	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Name of Physician and Address	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00	1.73
Record Number	0.43	0.50	0.43	0.50	0.43	0.50	0.43	0.50	3.73
Person Reporting (other than physician)	0.43	0.50	0.43	0.50	0.43	0.50	0.43	0.50	3.73
Telephone Number	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	3.46
Telephone Number (2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Date of Report	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	4.00

Table 2. Standard deviation of perceived need values for each field. Higher numbers reflect more disagreement among responses.

Keywords
completeness; Data quality; Communicable disease reports

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